

# New England and North West

Climate Change Snapshot



## Acknowledgement of Country

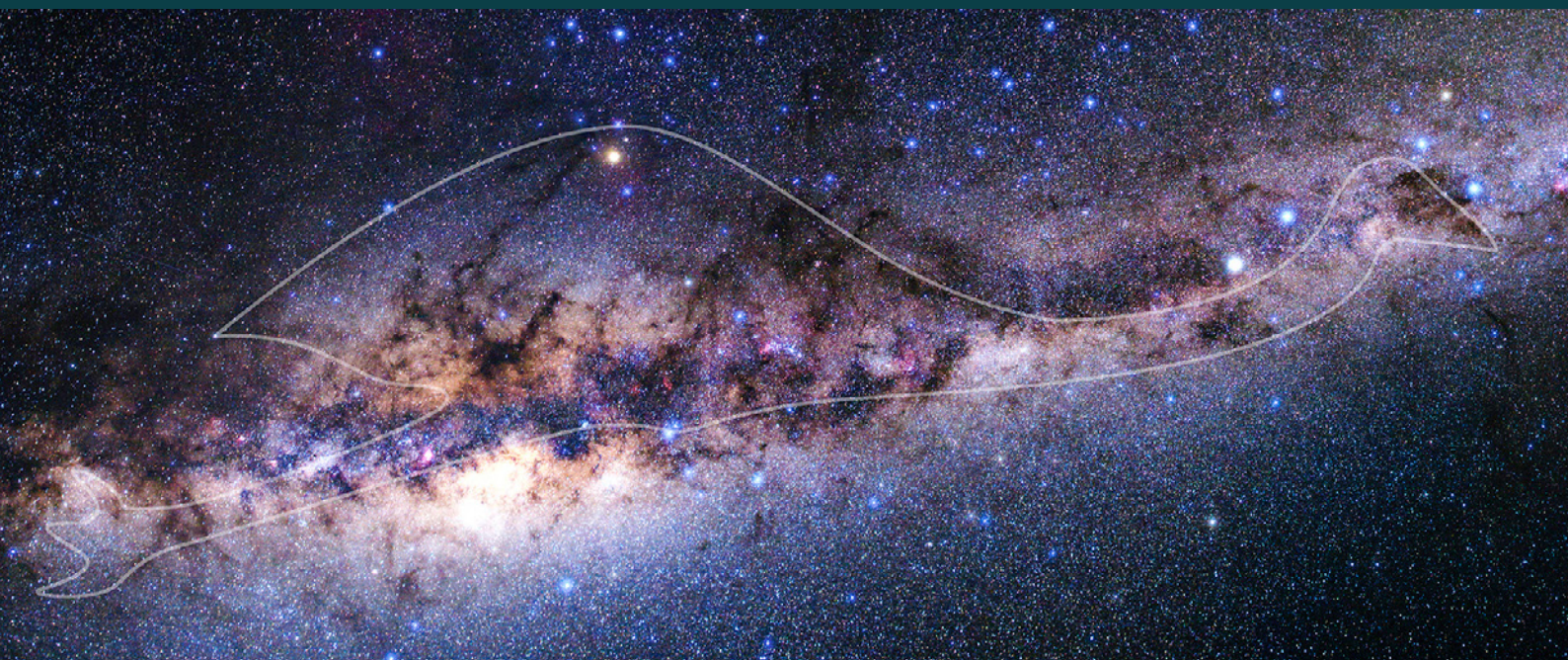
The NSW Government acknowledges First Nations people as the first Australian people and the traditional owners and custodians of the country's lands and water. The NSW Government acknowledges the Anaiwan, Banbai, Bundjalung, Githabul, Gumbaynggirr, Kamilaroi, Kwaimbul, Ngoorabel and Dunghutti Aboriginal people from the New England and North West region as having an intrinsic connection with the lands and waters. The landscape and its waters provide the First Nations people with essential links to their history and help them to maintain and practise their traditional culture and lifestyle.

Australia's First Nations people have lived in NSW for over 60,000 years and have significant spiritual, cultural and economic connections with its lands, waters, seas and skies.

They are the first astronomers and scientists who have been listening to and caring for Country for generations.

We pay respects to Elders past and present and acknowledge the significance of their traditional knowledge in adapting to changes in climate over tens of thousands of years.

We recognise the importance of their wisdom at this pivotal moment in time.



### Photo caption:

The Emu in the Sky is an Aboriginal constellation that is made up of the dark clouds of the Milky Way. With the movement of the earth, the position of the Emu in the Sky changes throughout the year. Aboriginal people in some nations across NSW and Australia relate the position of the Emu in the Sky to the breeding behaviour of the emu on the land. Cultural astronomy teaches us about the relationship between the sky and land; and that we are all interconnected.

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ISBN 978-1-76058-812-0 Published: August 2024



## About this snapshot

The New South Wales (NSW) and Australian Regional Climate Modelling (NARClIM) project delivers high-resolution climate change projections for NSW and south-east Australia.

This snapshot summarises the latest NARClIM2.0 projections for temperature, average rainfall, hot days 35°C and above, cold nights under 2°C and severe fire weather (Forest Fire Danger Index greater than 50) at a 4km resolution for NSW and the Australian Capital Territory (ACT). There is information for both a low-emissions scenario (SSP1-2.6), and a high-emissions scenario (SSP3-7.0) to the year 2100 to show the range of plausible climates that may be experienced, depending on our actions to reduce greenhouse gas emissions.

### Understanding current warming

NSW and the ACT have already warmed by 1.4°C since national records began in 1910.<sup>1</sup> This local warming figure represents surface air temperature over land in NSW and is not directly comparable to average estimates of global warming which include surface air temperature over both land and ocean. Surface warming occurs faster over land than the ocean. Significant impacts from climate change are already occurring in NSW and are expected to be felt more widely in the future, particularly if concerted global effort is not taken to reduce greenhouse gas emissions and adapt to the expected impacts of climate change.

### How to use this snapshot

This snapshot provides a summary of plausible future climate change in the New England and North West region relative to a baseline of average climate from 1990–2009. The projections for 2050 represent averaged data for 2040–2059 and projections for 2090 represent averaged data for 2080–2099. In translating the projections, it is important to consider the previous historical changes that occurred prior to 1990–2009. For example, national temperature records indicate that NSW has warmed by 0.84°C between 1910–1930 and the 1990–2009 baseline.<sup>1</sup>

Modelling climate change at a local level provides detailed insights into how NSW communities, built environments and natural environments will continue to be impacted by climate change. Information in this snapshot can be used in conjunction with detailed information that is available through the [AdaptNSW Interactive Map](#) and the [Climate Data Portal](#).

### NARClIM climate projections

NARClIM2.0 projections provide nation-leading climate model data that span the range of plausible future changes in climate for south-east Australia at a 4km resolution, and for the broader Australasian region at a 20km resolution. NARClIM2.0 projections are the next generation of NARClIM, building on previous generations delivered in 2014 and 2021. NARClIM is the NSW Government's trusted source of climate information and data for all audiences and sectors. Detailed information on NARClIM can be found at [AdaptNSW](#).

## Methods and uncertainty

To help address future uncertainty, NARcliM2.0 is built on a selection of emissions scenarios, global climate models and regional climate models that, together, capture a range of climates that could occur. This is referred to as the NARcliM model ensemble. The NARcliM2.0 model ensemble is made up of different combinations of 5 selected global climate models and 2 regional climate models, giving 10 model combinations in total. Unless otherwise specified, the presentation of data in this snapshot is averaged across a 20-year period from the NARcliM model ensemble.

Combining multiple models through averaging and other statistical methods produces better projections by providing a comprehensive range of possible future climate scenarios. To ensure that NARcliM models adequately simulate regional climate, scientists use them to simulate the past climate and compare the results with actual observations. Outputs undergo rigorous quality control and scientific technical peer review. There is more information on the [modelling project](#) and [scientific methods](#) at AdaptNSW.

## Shared Socioeconomic Pathways

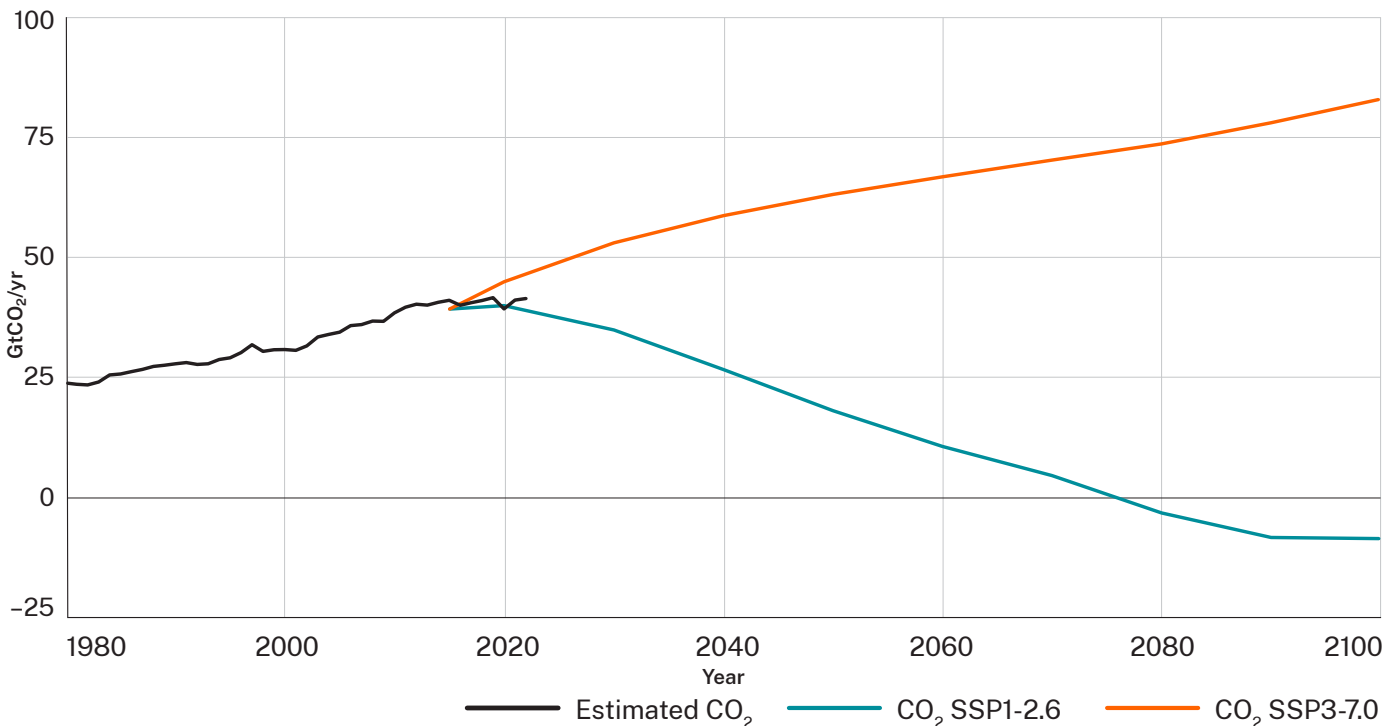
Shared Socioeconomic Pathways (SSPs) are the most recent emissions scenarios adopted in the IPCC's Sixth Assessment Report.

The SSPs describe how greenhouse gas emissions and socioeconomic factors – such as population, economic growth, education, urbanisation and land use – may change in the future. Global carbon dioxide emissions modelled for a low-emissions scenario and a high-emissions scenario are displayed below (Figure 1). For more information on emissions scenarios, visit [AdaptNSW](#).

**SSP1-2.6** describes a low-emissions future with a global transition towards sustainable and equitable development.

**SSP3-7.0** describes a high-emissions future of regional conflict and development where countries do not collaborate on tackling climate change and do not focus on sustainable and equitable development.

**Figure 1. Human-caused global emissions of carbon dioxide – past and projected**



## Mental health support

Climate change information can be distressing for some readers, with many Australians of all ages experiencing significant eco-anxiety. For supporting information, please visit the [Black Dog Institute](#) or [Australian Psychological Society](#) or speak with your local healthcare provider.

# Projected changes New England and North West



## Low-emissions scenario

Average temperature increase

↑ **1.3°C**  
2050

↑ **1.4°C**  
2090



Hot days per year will increase by:

**13.6**   **14.6**  
2050   2090



Cold nights per year will decrease by:

**13.2**   **15.6**  
2050   2090



Severe fire weather days per year will increase by:

**1.6**   **1.2**  
2050   2090

## High-emissions scenario

Average temperature increase

↑ **2.1°C**  
2050

↑ **4.1°C**  
2090



Hot days per year will increase by:

**20.9**   **43.5**  
2050   2090



Cold nights per year will decrease by:

**22.4**   **38.0**  
2050   2090



Severe fire weather days per year will increase by:

**2.0**   **3.8**  
2050   2090

## Regional impacts

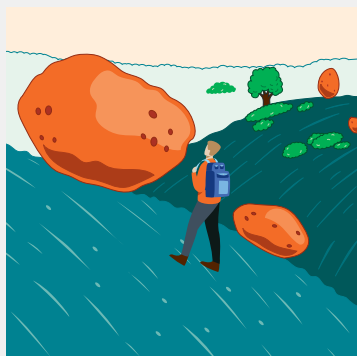
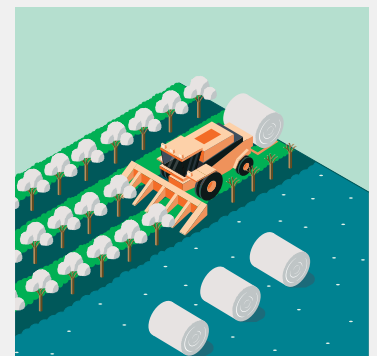


### Inland wetlands

Changes to rainfall

### Water supply

Changes to rainfall



Increased severe fire weather

Increased extreme heat

### National parks

### Cotton production

Data is based on NARClm2.0 (2024) projections for SSP1-2.6 (low-emissions) and SSP3-7.0 (high-emissions) and is presented relative to the historical climate baseline of 1990–2009. The projections for 2050 represent averaged data for 2040–2059 and projections for 2090 represent averaged data for 2080–2099. Values presented are averages across the NARClm2.0 model ensemble, and do not represent the full range of plausible climate futures. Regional climate change impacts are used to highlight how the region is likely to be affected by climate change, and impacts are not limited to the examples provided.

# Climate of New England and North West

The climate of NSW underpins a diverse array of important natural ecosystems, lifestyles and industries. A stable climate is critical to support a range of values in NSW, including our food systems, unique biodiversity and recreational activities.

The New England and North West region covers a large area including the Liverpool Plains, New England Tablelands and the North West Slopes and Plains. Tamworth and Armidale are the main urban centres in the region, with other regional settlements of Glen Innes, Inverell, Moree, Narrabri and Gunnedah. The region has rich, fertile soil, and is responsible for about 20% of NSW's agricultural production.



## Current climate

The New England and North West region has a diverse range of climates, from the cooler and more temperate Northern Tablelands through to the dryer and hotter North West Slopes and Plains in the west. The tablelands have a temperate climate with warm summers and cool winters. The far north-west of the region is hot and semi-arid, while much of the North West Slopes has a humid subtropical climate.

Extensive national parks occur along the escarpment. Other large parks include Mount Kaputar and Torrington on the tablelands and the Pilliga Community Conservation Areas on the western plains. The region's wetlands support a diversity of flora and fauna that mostly depend on fluctuating water regimes of wetting and drying. The region contains some major floodplain wetlands including the internationally significant Gwydir Wetlands and Little Llangothlin Lagoon.

**Table 1. Baseline climate for New England and North West**

	Average temperature	Hot days	Cold nights	Rainfall	Severe fire weather days
Observed	17.0°C	20.5	50.5	728mm	1.7
Historical model	17.0°C	20.7	49.0	623mm	3.6

Table 1 outlines the annual average values for the 1990–2009 baseline period in this snapshot. All observed data is calculated from Bureau of Meteorology products. Long-term temperature change data is from the long-term temperature record.<sup>1</sup> Observed information and data in graphs come from Australian Gridded Climate Data (AGCD).<sup>2</sup>



## Temperature

### New England and North West is getting warmer

Temperature is the most robust indicator of climate change. In NSW, 6 of the 10 warmest years on record since 1910 have occurred since 2013. The warmest year on record for both average temperature and maximum temperature in the New England and North West region was 2019, when average temperature was 1.6°C above the 1990–2009 average.<sup>2</sup>

### Projections

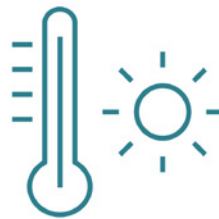
Across the New England and North West region, average temperatures will increase throughout this century (Figure 2).

Under a low-emissions scenario, the average temperature increase across the region is projected to be less than 0.1°C between 2050 and 2090 (Table 2). However, a major temperature increase of 2.0°C is expected during the same period under a high-emissions scenario. Notably, the temperature projections for 2050 under a high-emissions scenario are expected to exceed the projections for 2090 under a low-emissions scenario.

Temperature increases are expected in all parts of the region (Figure 3) and across all seasons. Western areas of the region, including towns such as Moree and Narrabri, will see the greatest increases in temperature. By 2090, Moree is likely to experience an increase in temperature of 1.5°C under a low-emissions scenario and 4.2°C under a high-emissions scenario. Comparatively, Armidale is likely to experience an increase in temperature of 1.3°C under a low-emissions scenario and 3.7°C under a high-emissions scenario.

# 4.1°C

rise in average temperature across New England and North West by 2090 under a high-emissions scenario



# 6 of 10

warmest years on record have occurred since 2013



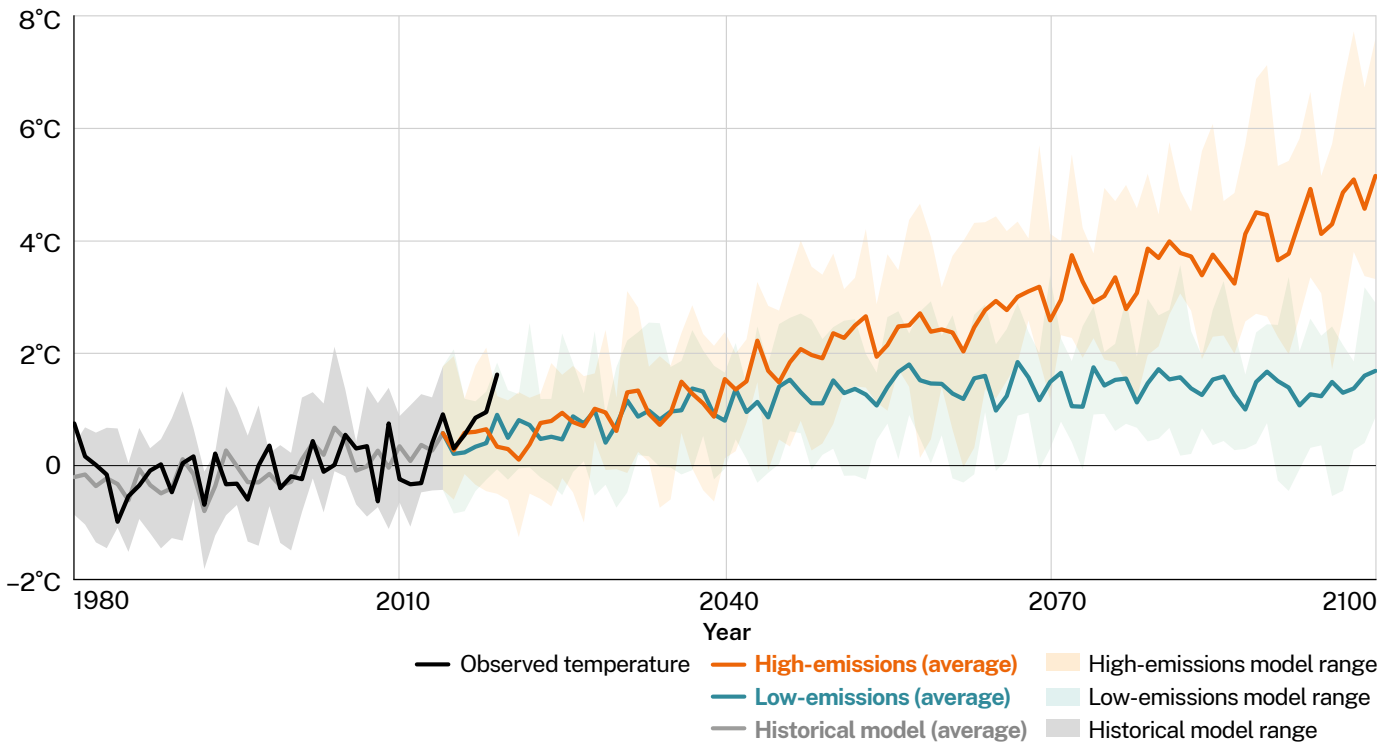


**Table 2. Projected annual average temperature increase – New England and North West**

	2050		2090	
	Low-emissions	High-emissions	Low-emissions	High-emissions
Temperature	<b>1.3°</b> (0.6–1.9°C)	<b>2.1°C</b> (1.2–3.1°C)	<b>1.4°C</b> (0.6–2.3°C)	<b>4.1°C</b> (3.0–5.7°C)
Maximum temperature	<b>1.3°C</b> (0.6–2.0°C)	<b>2.1°C</b> (1.3–3.2°C)	<b>1.5°C</b> (0.6°C–2.5°C)	<b>4.0°C</b> (3.1–5.6°C)
Minimum temperature	<b>1.2°C</b> (0.7–1.8°C)	<b>2.0°C</b> (1.1–2.9°C)	<b>1.4°C</b> (0.7–2.1°C)	<b>4.1°C</b> (2.9–5.6°C)

The bold number is the ensemble average for the period. Underneath the average is the ensemble range.

**Figure 2. Historical and projected average temperature change – New England and North West**



**The shading around the graphs**

The climate change projections presented in this snapshot are relative to the historical climate baseline of 1990–2009. The graphs provide a projected annual average for the 2 emissions scenarios.

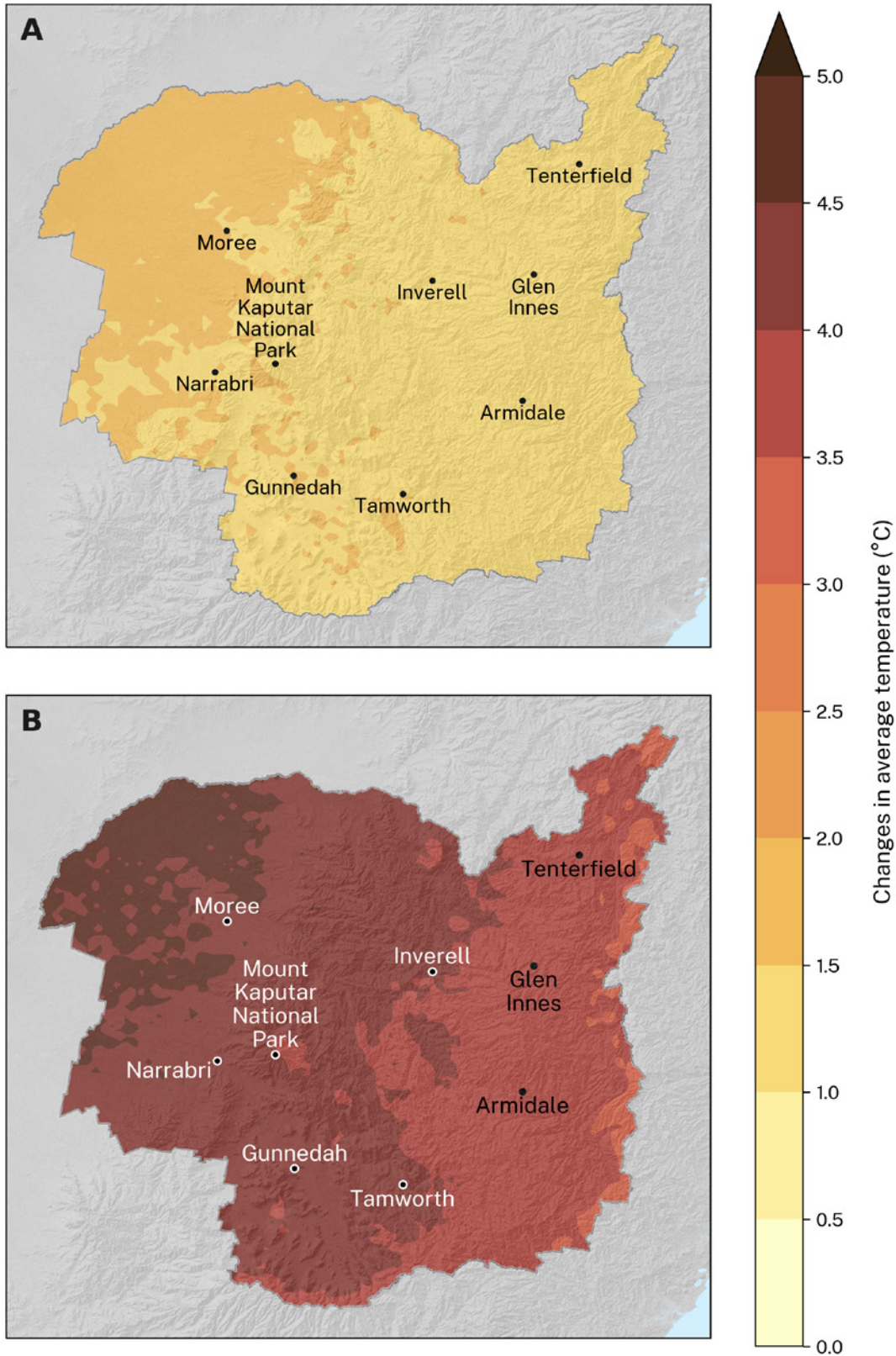
The range of plausible climate futures across the NARcliM model ensemble is shown by light shading. For historical climate data, both recorded observational data (dark line) and modelling of the past climate in NARcliM2.0 (grey) are presented.





# Temperature

Figure 3. Projected change in average temperature by 2090 for New England and North West under A) a low-emissions scenario and B) a high-emissions scenario





## Hot days

### Hot days will become more frequent

Prolonged hot days where maximum temperatures are 35°C or above increase the incidence of illness and death—particularly among vulnerable people. Seasonal changes in number of hot days could have significant impacts on bushfire danger, infrastructure and native species.

### Projections

Generally, the number of hot days in the New England and North West region increases from the east to the west of the region. During the baseline period, areas of higher elevation in the east of the region, such as Armidale and Tenterfield, had on average less than 1 hot day per year. Tamworth and Inverell, near the centre of the region, had on average 5–15 hot days per year, whereas in the west, locations such as Moree and Narrabi averaged 40–45 hot days per year.

Changes to **temperature extremes** often have **more pronounced impacts** than changes in average **temperature**.

Higher maximum temperatures affect health through **heat stress** and exacerbate existing health conditions.

The number of hot days will increase for the New England and North West region by 2050 for both a low-emissions and a high-emissions scenario, with an even greater increase projected by 2090 under a high-emissions scenario (Table 3). The number of hot days is projected to increase during spring, summer and autumn, with the largest increase in summer.

Under a low-emissions scenario, there is only 1.0 additional hot day per year projected across the region between 2050 and 2090 (Table 3). However, an increase of 22.6 additional hot days per year is projected under a high-emissions scenario during the same period.

**By 2090, Tamworth could experience nearly five times the number of hot days under a high-emissions scenario. Areas of the region such as Armidale that currently experience few hot days could experience a notable increase in hot days.**

Increases to hot days will occur across all of the region (Figure 5). The greatest increases are projected to occur in the west of the region including Moree and Narrabri. Other low-elevation areas including Tamworth and Gunnedah will also experience greater increases in hot days. By 2090, Moree is projected to experience 26.5 additional hot days per year under a low-emissions scenario and 71.0 additional hot days per year under a high-emissions scenario. A high-emissions scenario is projected to more than double Moree's baseline period average of 43.4 hot days per year. Comparatively, in the southeast of the region, Armidale's baseline period average is 0.2 hot days per year. By 2090, Armidale is projected to experience an additional 0.9 hot days per year under a low-emissions scenario and 7 additional hot days per year under a high-emissions scenario.



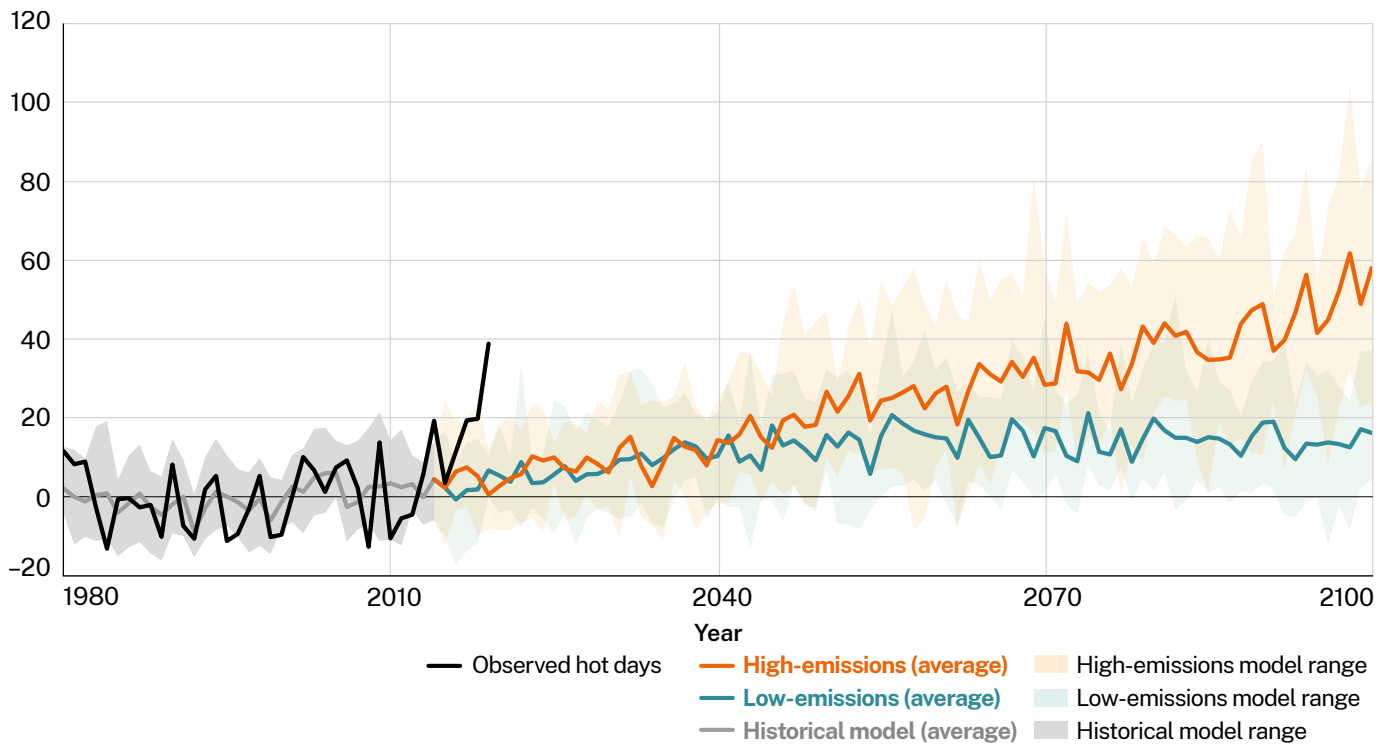
## Hot days

**Table 3. Projected increase in average annual number of hot days – New England and North West**

2050		2090	
Low-emissions	High-emissions	Low-emissions	High-emissions
<b>13.6 days</b> (5.8 to 20.6 days)	<b>20.9 days</b> (8.9 to 35.3 days)	<b>14.6 days</b> (5.8 to 28.7 days)	<b>43.5 days</b> (26.7 to 66.9 days)

The bold number is the ensemble average for the period. Underneath the average is the ensemble range.

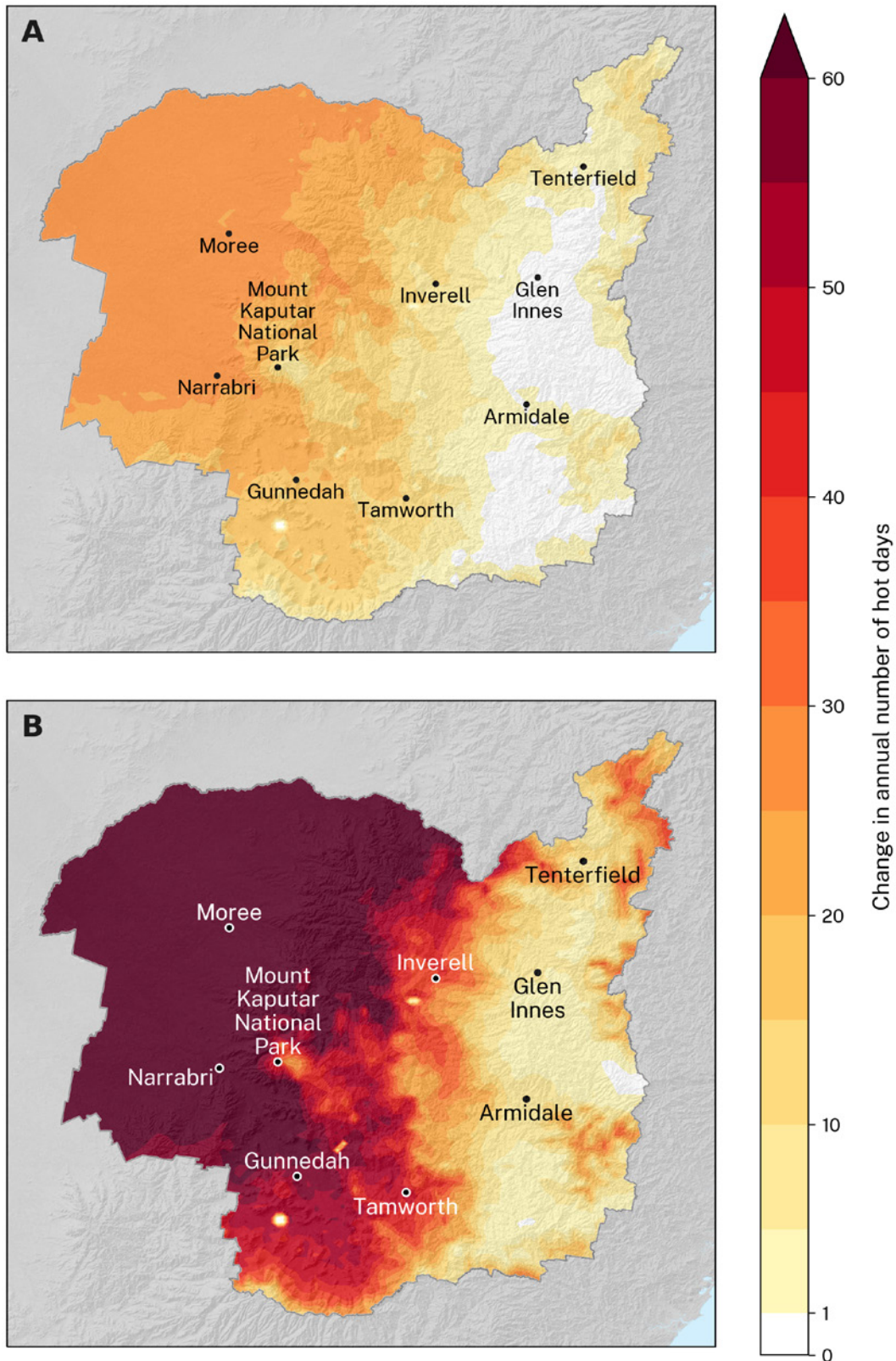
**Figure 4. Historical and projected change in annual number of hot days – New England and North West**





## Hot days

Figure 5. Projected change in annual number of hot days by 2090 for New England and North West under A) a low-emissions scenario and B) a high-emissions scenario





## Cold nights

### Cold nights will decrease

Cold nights are those where the minimum temperature drops below 2°C. These are important for the survival of some important plant species. For example, some common temperate fruit species require sufficiently cold winters to produce flower buds.

### Projections

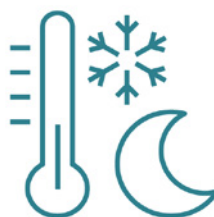
The number of cold nights varies widely across the New England and North West region, but generally decreases from the east to the west. In the high country during the baseline period, Armidale and surrounds had, on average, more than 80 cold nights per year. Other high-elevation areas of the region such as Inverell and Mount Kaputar National Park had on average 60–70 cold nights per year. Low-elevation areas of the region such as Moree, Narrabri and Gunnedah had on average 15–25 cold nights per year during the baseline period.

High-elevation areas of the region such as Armidale, Mount Kaputar and Glen Innes could experience a 65–75% reduction in the annual number of cold nights by 2090.

The number of cold nights decrease for the New England and North West region by 2050 for both a low-emissions and a high-emissions scenario, with an even greater decrease by 2090 under a high-emissions scenario (Table 4). The number of cold nights is projected to decrease across autumn, winter and spring, with the largest decreases in winter.

Under a low-emissions scenario, there is a small decrease of 2.4 fewer cold nights per year projected across the region between 2050 and 2090 (Table 4). However, a decrease of 15.6 fewer cold nights per year is projected under a high-emissions scenario during the same period.

Under a high-emissions scenario, the number of cold nights across New England and North West could **reduce by nearly 80%** by 2090.



Under a low-emissions scenario, the number of cold nights across New England and North West could **reduce by less than 35%** by 2090.

Cold nights will decrease across all of the region, particularly in high-elevation areas in the east (Figure 7). The greatest decreases are projected to occur near Armidale, Glen Innes and Walcha. By 2090, Armidale is projected to have 18.9 fewer cold nights per year under a low-emissions scenario and 53.1 fewer cold nights per year under a high-emissions scenario. A high-emissions scenario is projected to reduce Armidale's 80.3 cold nights per year base period average by more than 65%.



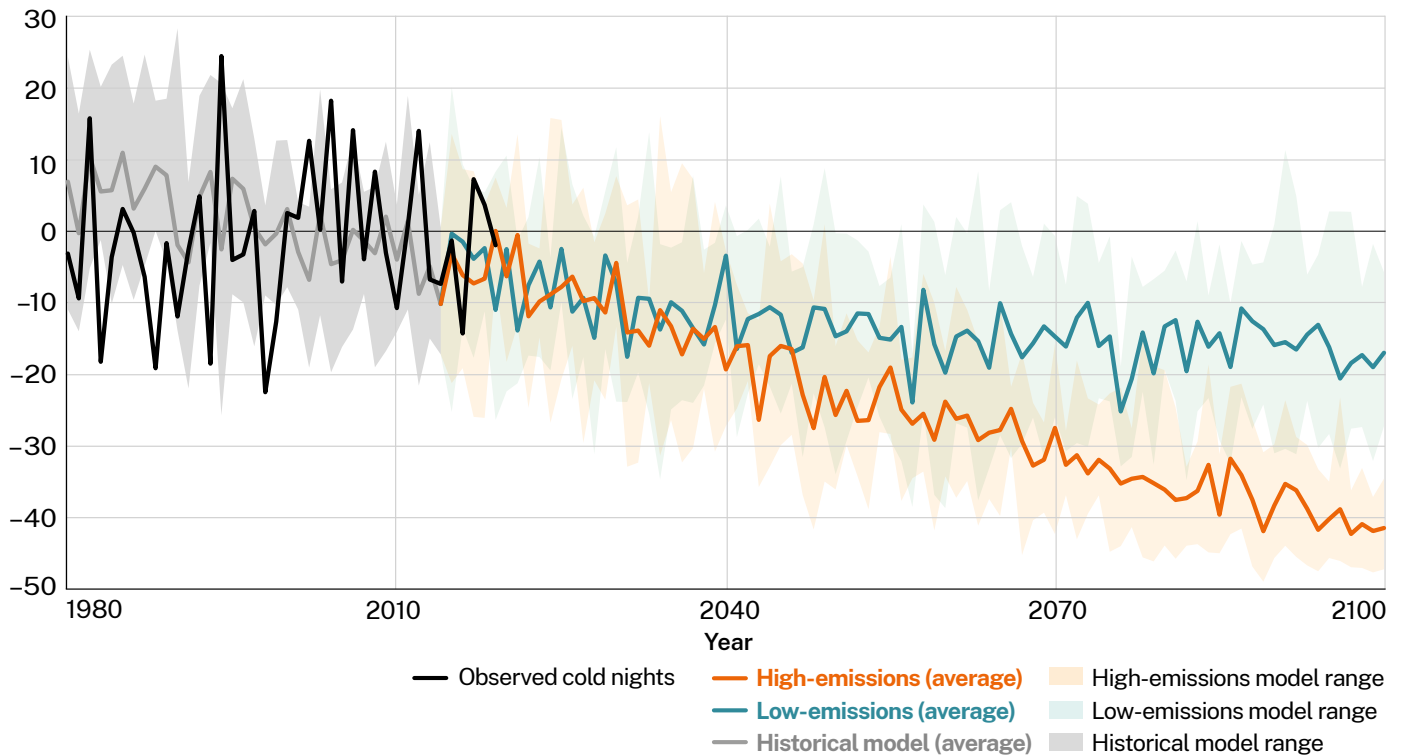
## Cold nights

**Table 4. Projected decrease in average annual number of cold nights – New England and North West**

2050		2090	
Low-emissions	High-emissions	Low-emissions	High-emissions
<b>13.2 days</b> (7.8 to 18.8 days)	<b>22.4 days</b> (12.5 to 29.4 days)	<b>15.6 days</b> (7.9 to 22.3 days)	<b>38.0 days</b> (31.1 to 44.8 days)

The bold number is the ensemble average for the period. Underneath the average is the ensemble range.

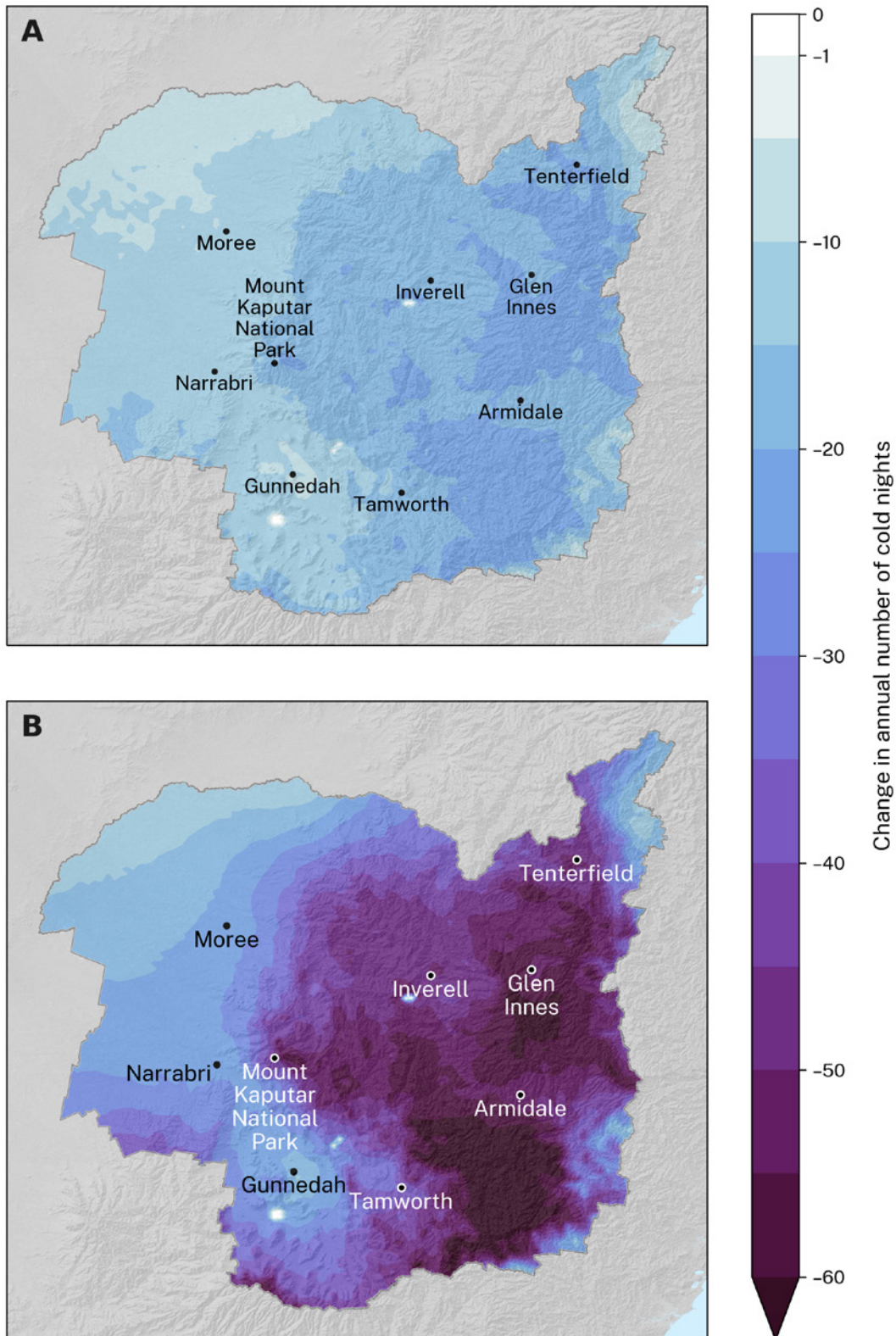
**Figure 6. Historical and projected change in annual number of cold nights – New England and North West**





## Cold nights

Figure 7. Projected change in annual number of cold nights by 2090 for New England and North West under A) a low-emissions scenario and B) a high-emissions scenario





## Rainfall

### Rainfall is projected to remain variable

Climate change will influence rainfall patterns and the total amount of rainfall that NSW receives. These changes may have widespread impacts on water security, native species' reproductive cycles and agricultural productivity. For example, eucalypt woodlands and riverine plains in New England and North West could struggle to cope with drier conditions.

### NSW has experienced rainfall extremes in recent decades, with significant impacts on communities, infrastructure and natural ecosystems.

Modelling rainfall is more difficult than modelling temperature due to the complexities of the weather systems that generate rain. NARcliM projections capture a range of plausible climate futures under the 2 emissions scenarios, including wet and dry outcomes. This means that rainfall is inherently more variable in the NARcliM projections than temperature, and the full range of rainfall projections should be taken into account. This can be explored further on the [AdaptNSW Interactive Map](#).

Annual rainfall across the New England and North West region averages about 730mm. Rainfall generally decreases from the east to the west of the region, with rainfall highest in the New England Tablelands. Rainfall is highest in summer, with winter being the driest season. The driest year on record was 2019, with an average of only 250mm across the region.<sup>2</sup>

### Projections

This snapshot provides data on average rainfall change and does not provide data on rainfall extremes and the impacts of climate change on flooding.

Annual average rainfall in the region is projected to remain variable throughout this century (Figure 8). By 2090, on average, annual rainfall is projected to decrease by 9% under a low-emissions scenario and by 8% under a high-emissions scenario (Table 5).

By 2090, on average, winter rainfall is expected to change by less than 6% across the region under a low-emissions scenario. Under a high-emissions scenario, average winter rainfall is expected to decrease across the region, particularly in the northeast near Armidale and Tenterfield, which are expected to experience a decrease in rainfall of approximately 25–35%.

### Under a high-emissions scenario, average winter rainfall could decrease by 24% across New England and North West.

On average, summer, autumn and spring rainfall is projected to change by 12% or less across the region by 2090 under both a low-emissions scenario and a high-emissions scenario. However, average summer rainfall is projected to increase in the east near Armidale, which is projected to experience an increase in summer rainfall of 12%. Refer to the [Interactive Map](#) for further seasonal information.



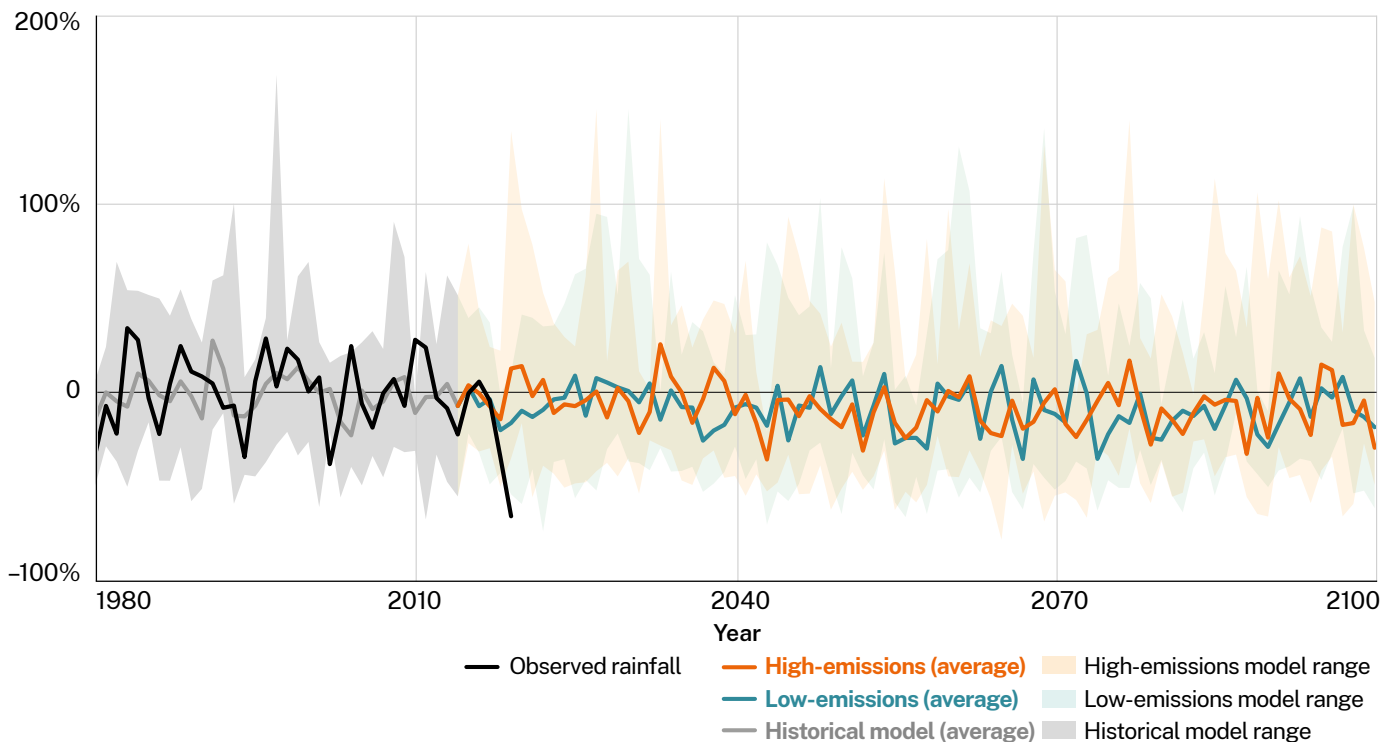


**Table 5. Projected change to average rainfall – New England and North West**

	2050		2090	
	Low-emissions	High-emissions	Low-emissions	High-emissions
<b>Annual</b>	<b>-9.5%</b> (-22.4% to +7.9%)	<b>-12.3%</b> (-29.9% to +14.7%)	<b>-9.3%</b> (-19.9% to +8.6%)	<b>-8.4%</b> (-36.2% to +39.4%)
<b>Summer</b>	<b>-8.4%</b> (-24.7% to +19.6%)	<b>-13.9%</b> (-42.0% to +17.2%)	<b>-12.6%</b> (-31.9% to +9.6%)	<b>+3.3%</b> (-22.6% to +40.4%)
<b>Autumn</b>	<b>-12.1%</b> (-28.1% to +3.3%)	<b>-12.4%</b> (-24.1% to +34.1%)	<b>-6.3%</b> (-18.6% to +24.5%)	<b>-12.8%</b> (-35.2% to +39.7%)
<b>Winter</b>	<b>-12.5%</b> (-29.5% to +16.2%)	<b>-14.9%</b> (-43.6% to +33.2%)	<b>-5.3%</b> (-27.2% to +39.5%)	<b>-24.2%</b> (-61.3% to +63.2%)
<b>Spring</b>	<b>-6.5%</b> (-30.9% to +28.9%)	<b>-7.6%</b> (-37.1% to +34.2%)	<b>-10.0%</b> (-26.3% to +32.7%)	<b>-10.8%</b> (-38.4% to +48.1%)

The bold number is the ensemble average for the period. Underneath the average is the ensemble range.

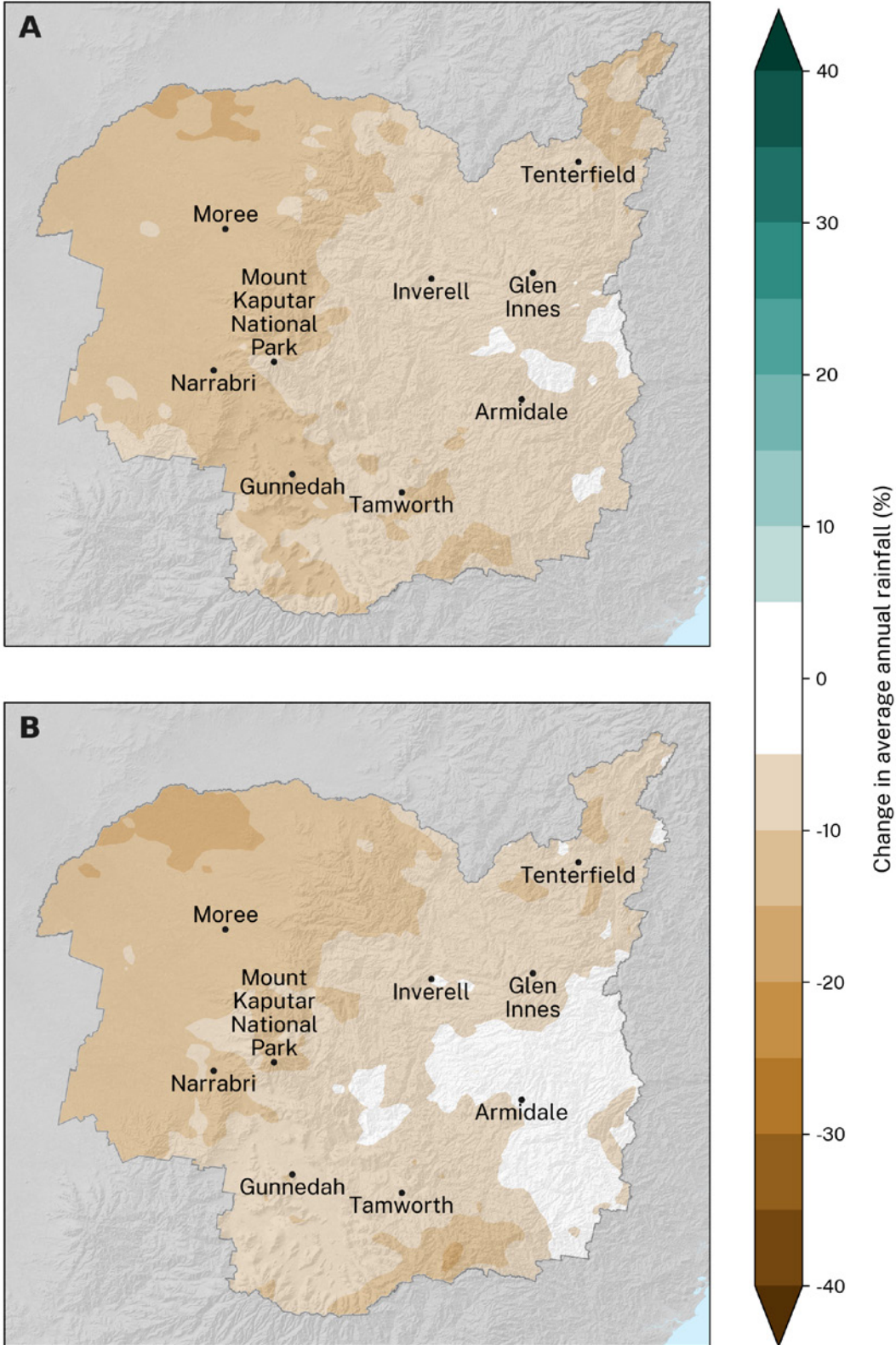
**Figure 8. Historical and projected change to average rainfall – New England and North West**





# Rainfall

Figure 9. Projected change to average rainfall by 2090 for New England and North West under A) a low-emissions scenario and B) a high-emissions scenario





## Severe fire weather

### Severe fire weather will increase

The Forest Fire Danger Index (FFDI) represents an estimate of fire weather risk. The FFDI is calculated from temperature, relative humidity and wind speed, as well as a number representing fuel availability.

Severe fire weather (FFDI greater than 50) is most likely in summer and spring. Fire weather was the strongest determining factor of house loss during the Black Summer bushfires.<sup>3</sup> The number of severe fire danger days observed for the New England and North West region is 1.7 days per year on average. The number of severe fire danger days generally increases from the east to the west of the region. The record number of severe fire danger days in a year was 2019 with approximately 14.4 days on average across the region, including 8 days recorded at the Armidale station and 26 days recorded at the Tamworth station.<sup>4</sup>

**Fire weather was the strongest determining factor of house loss during the Black Summer bushfires.<sup>3</sup>**



FFDI was monitored by weather stations across NSW and the ACT until the introduction in 2022 of the Australian Fire Danger Rating System. FFDI is used in this snapshot as it can be simulated using the NARClIM projections, whereas data used by the Australian Fire Danger Rating System cannot. FFDI also provides a long history of data and gives context to the NARClIM projections.

### Projections

The number of severe fire weather days will increase for the New England and North West region by 2050 for both a low-emissions and a high-emissions scenario, with an even greater increase projected by 2090 under a high-emissions scenario (Table 6). The number of severe fire weather days is projected to increase during spring and summer, with the largest increase in summer.

**Under a high-emissions scenario, the number of annual severe fire weather days could more than double across New England and North West by 2090.**

Increases to severe fire weather days are projected to occur across most of the region (Figure 11). The greatest increases are projected to occur in the west of the region including Moree and Narrabri. Other low-elevation areas including Tamworth and Gunnedah are also projected to experience increases in severe fire weather days. By 2090, Moree is projected to experience 2.1 additional severe fire weather days per year under a low-emissions scenario and 5.8 additional severe fire weather days per year under a high-emissions scenario. A high-emissions scenario is projected to more than double Moree's baseline period average of 5.2 severe fire weather days per year. Comparatively, in the east of the region, Armidale's baseline period average is 0.3 severe fire weather days per year. By 2090, Armidale is projected to experience 0.1 additional severe fire weather days per year under a low-emissions scenario and 0.7 additional severe fire weather days per year under a high-emissions scenario.



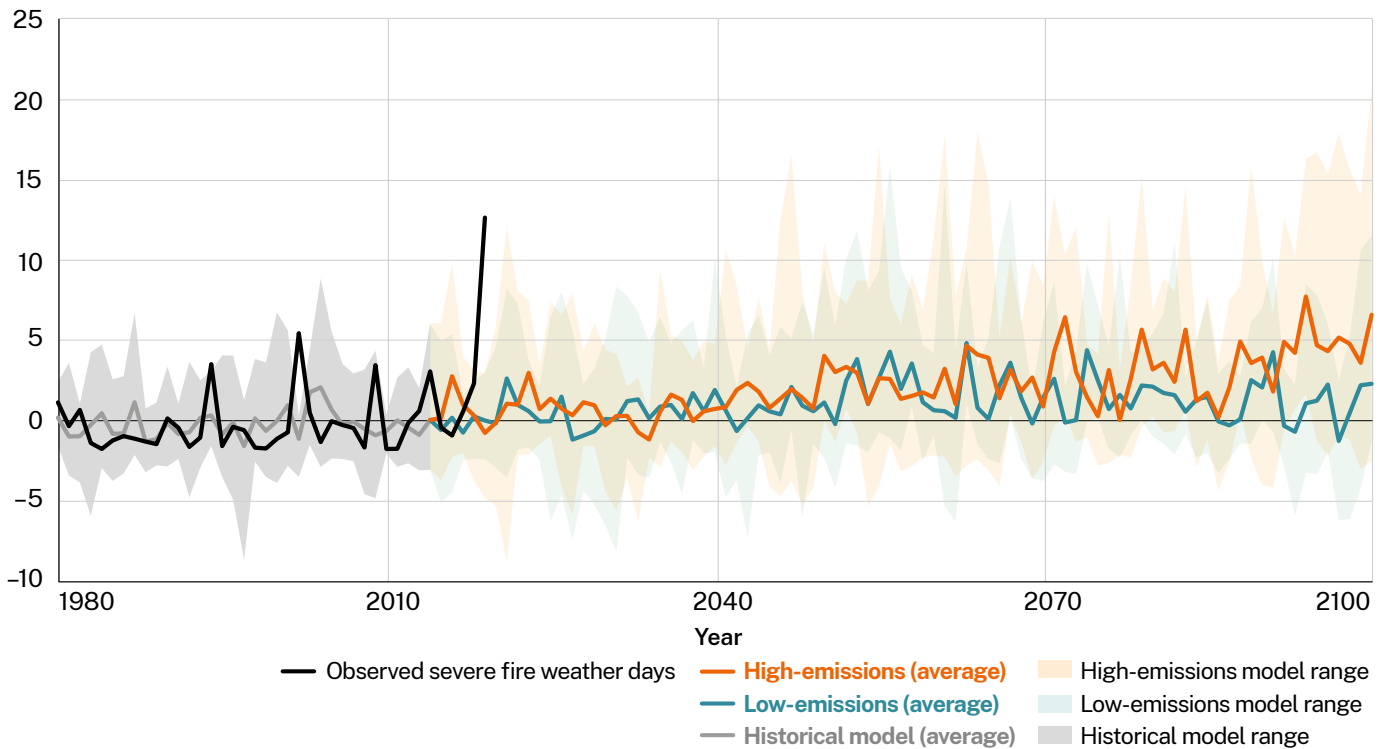
## Severe fire weather

**Table 6. Projected increase in average annual number of severe fire weather days – New England and North West**

2050		2090	
Low-emissions	High-emissions	Low-emissions	High-emissions
<b>1.6 days</b> (0.5 to 3.1 days)	<b>2.0 days</b> (0.0 to 5.9 days)	<b>1.2 days</b> (-0.4 to 3.5 days)	<b>3.8 days</b> (1.1 to 9.4 days)

The bold number is the ensemble average for the period. Underneath the average is the ensemble range.

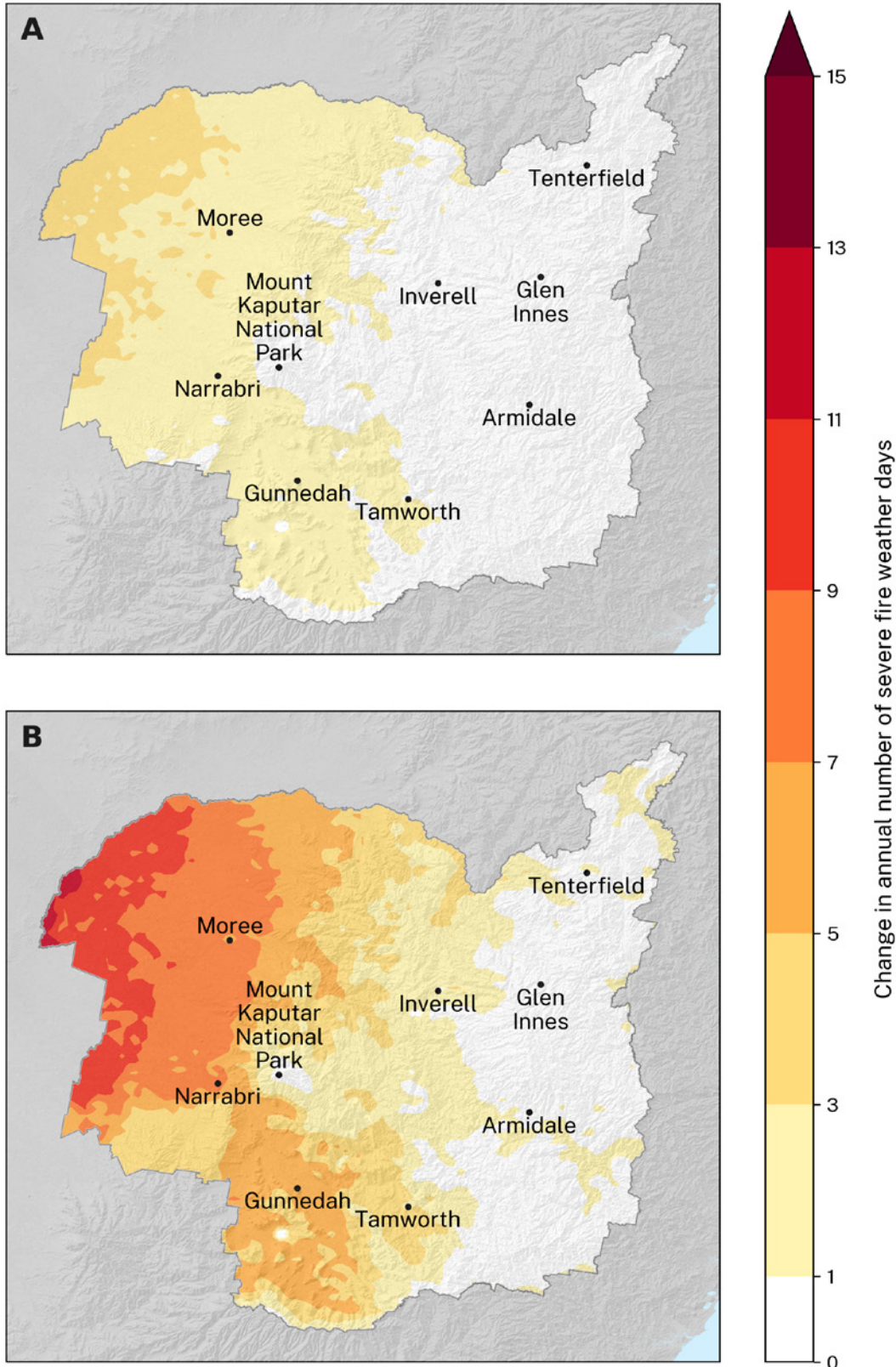
**Figure 10. Historical and projected change to annual number of severe fire weather days – New England and North West**





## Severe fire weather

Figure 11. Projected change to annual number of severe fire weather days by 2090 for New England and North West under A) a low-emissions scenario and B) a high-emissions scenario





## Climate change impacts on New England and North West

Climate change is already impacting the New England and North West region, particularly through increased temperatures and changes to rainfall. Climate change will continue impacting a variety of important economic, cultural and environmental values across the region.



### Impacts on water supply and wetlands

Changes to rainfall and increased temperatures could have significant impacts on water supplies and internationally significant wetlands in the region, due to increased evapotranspiration and a shift in seasonal patterns. There is the potential for an increased risk of lower median inflows and cease-to-flow periods in key river catchments such as the Namoi and Gwydir rivers.<sup>5,6</sup> The internationally significant Gwydir Wetlands could be impacted by changes to rainfall and increased temperatures, which could cause enhanced evaporation, reductions in available water to plant communities and a reduction in waterbird breeding.<sup>7</sup>



### Bushfires

The region also experienced significant impacts during the 2019–2020 bushfire season with extensive impacts on communities, infrastructure and natural ecosystems. Over 570,000 hectares of the region were burnt and 3450 buildings were impacted, including 164 homes which were destroyed.<sup>8</sup> Large areas of bushland and some

rural areas such as Torrington experienced extreme fire severity. Over 120,000 hectares of NSW national parks listed under the Gondwana Rainforests World Heritage Area that are entirely or partly within the region were burnt.<sup>9</sup> Approximately 20,000 hectares of Mount Kaputar National Park were also burnt.<sup>10</sup> Severe fire danger days, which create the underlying conditions for large-scale bushfires, are expected to become more common in the future, particularly under a high-emissions scenario.

### References

- <sup>1</sup> [Long-term temperature record](#) – webpage
- <sup>2</sup> [About Australian Gridded Climate Data maps and grids](#) – webpage
- <sup>3</sup> Price et al. 2020, [Probability of house destruction. Theme 3A. People and Property Impacts, Bushfire Risk Management Research Hub for the NSW Bushfire Inquiry 2020](#) – webpage
- <sup>4</sup> [Bureau of Meteorology Station Data](#) – webpage
- <sup>5</sup> DPE 2022, [‘Regional Water Strategy – Gwydir’](#), Department of Planning and Environment, Sydney
- <sup>6</sup> DPE 2023, [‘Regional Water Strategy – Namoi’](#), Department of Planning and Environment, Sydney
- <sup>7</sup> DECCW 2011, [‘Gwydir Wetlands Adaptive Environmental Management Plan’](#), Department of Environment, Climate Change and Water, Sydney
- <sup>8</sup> Owens & O’Kane 2020, [‘Final report of the NSW Bushfire Inquiry’](#), Department of Premier and Cabinet, Sydney
- <sup>9</sup> DAWE 2020, [‘Gondwana Rainforests of Australia State of Conservation update – April 2020’](#), Department of Agriculture, Water and the Environment, Canberra
- <sup>10</sup> DPIE 2020, [‘NSW fire and the environment 2019–20 summary’](#), Department of Planning, Industry and Environment, Sydney

# Climate action and information



## Climate action

The NARcliM projections for the low-emissions scenario and the high-emissions scenario highlight the stark difference in climate change impacts that will be experienced under each scenario. The differences provide a reminder of the required action across the world to reduce emissions, and specifically within NSW to meet our legislated Net Zero by 2050 emissions reduction targets. This is our best chance at ensuring the future projections under the high-emissions scenario are avoided. The NARcliM projections highlight the importance of taking action to adapt to the impacts of climate change. For more resources on reducing emissions and adapting to the impacts of climate change, visit [AdaptNSW](#).

## Information

NARcliM projections are delivered with support from: the ACT, South Australian, Victorian and Western Australian governments; National Computational Infrastructure; Murdoch University; and the University of New South Wales. Detailed information on the methodology and application of the projections can be found on the [AdaptNSW](#) website.

Climate change information in this snapshot is delivered as part of the NSW Government's commitment to 'Publish regularly updated and improved local level climate change projections' under Action 3 of the [NSW Climate Change Adaptation Strategy](#).

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*p.7: Township, Moree, David Waugh/Destination NSW; Gibraltar Range National Park, Gibraltar Range, Daniel Tran/Destination NSW*

*p.10: Hot day, Serg64/Shutterstock*

*p.13: Frost on the farm, MacierPhotography/iStock*

*p.16: Rainforest, New South Wales, Zaharov/iStock*

*p.19: Forest fire, byronsdad/iStock*

*p.22: Gwydir watercourse wetland, Murray-Darling Basin, Daryl Albertson/NSW DCCEEW*

*p.23: Putting in a remote Rako line fire control, Michael Jarman/DCCEEW*

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